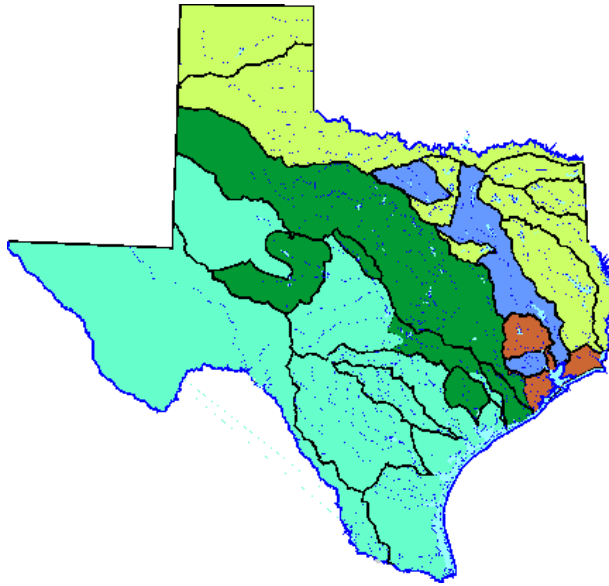


Total Maximum Daily Loads (TMDLs)

The TNRCC's Framework for Implementing Water Quality Management



March 1997



Section 303(d) of the Clean Water Act

Program Requirements

- Identify water bodies which do not meet standards (§303(d) list)
- Submit §303(d) list to EPA for approval
- Establish priorities and schedule for developing TMDLs
- Develop TMDLs that identify parties responsible for implementing pollution controls
- Submit TMDLs to EPA for approval



Determine Standards Compliance

State Water Quality Standards - Goals for Water Quality

- **Surface Water Quality Standards**
 - Establish the basis or “yardstick” by which water quality is evaluated
 - Define the uses of water bodies:
 - aquatic life, recreation, domestic water supply, shellfish
 - Set numeric and narrative criteria necessary to protect these uses:
 - chloride, sulfate, total dissolved solids, dissolved oxygen, fecal coliform, temperature, radioactivity, toxic materials, pH
- **Legislative Mandate**
 - Federal Clean Water Act §303(d)
 - Texas Water Code §26.023



1996 CWA §303(d) List Summary

Causes of Impairment

Contaminant	Use Impaired	Segments Affected
Fecal Coliform	Recreation Shellfish	117 segments (82%)
Dissolved Oxygen	Aquatic Life	38 segments (27%)
Metals	Aquatic Life	28 segments (20%)
Organics	Aquatic Life	19 segments (13%)
Dissolved Solids	Aquatic Life	19 segments (13%)

1996 CWA §303(d) List Summary

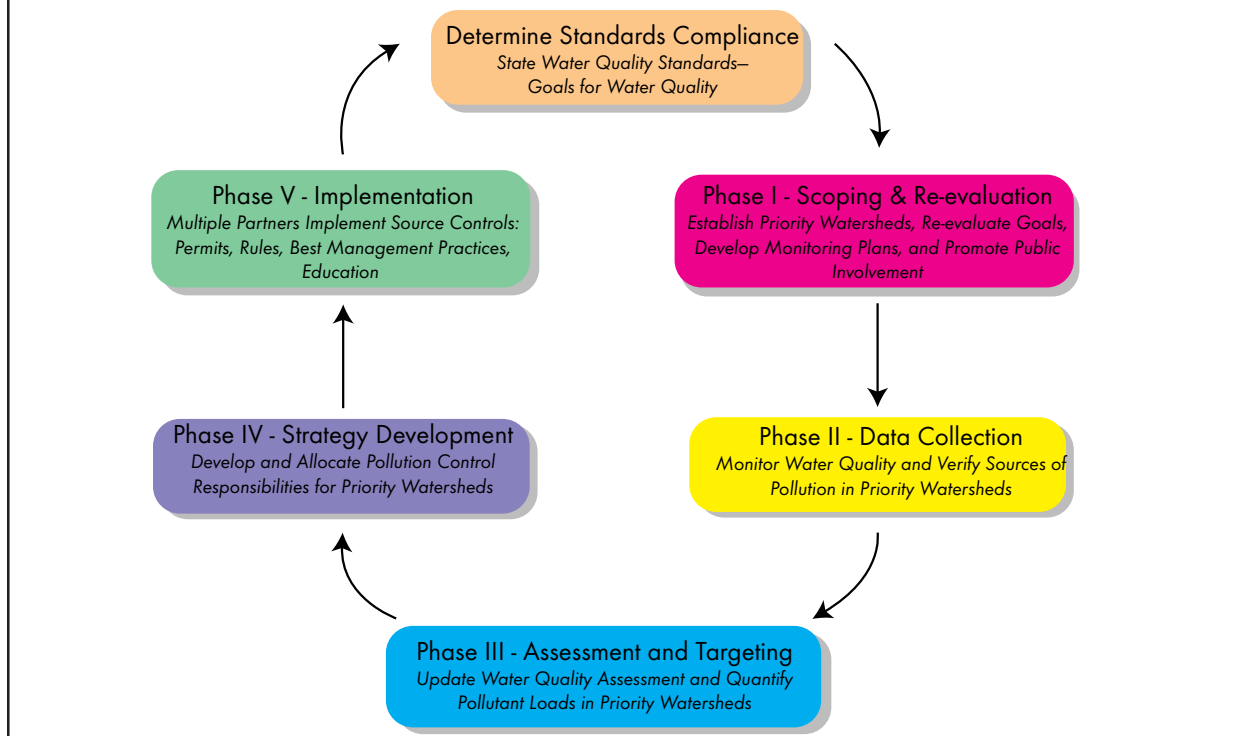
Sources of Impairment

Source	Segments Affected
Total # of segments that do not support or partially support their designated use	142 Segments
NPS impaired only	Data indicates 62 segments (44%)
NPS and point source impaired	Data indicates 43 segments (30%)
Point source or natural source impaired only	Data indicates 37 segments (26%)

Typical Water Quality Impairments Found

Contaminant	Potential Source of Contaminant	Water Quality Management Jurisdiction
Elevated fecal coliform	Livestock pastureland	TSSWCB, S & W Conservation Districts, Agricultural Extension Service
	On-site wastewater systems	TNRCC, Counties
	Wastewater treatment plant	TNRCC Wastewater Permittee, Municipalities
Low dissolved oxygen	Excessive nutrients from agriculture land use, residential development, low flows	TSSWCB, NRCS, S & W Conservation Districts, TNRCC, Ag Producers, Municipalities
Elevated levels of lead and cadmium	Urban runoff	TNRCC, Local Drainage Utility Wastewater Permittee
Elevated levels of chloride and total dissolved solids	Groundwater, oil wells, sediment from erosion	TNRCC, RCT, Local Drainage Utility District, Municipalities
Elevated levels of chlordane	Agricultural runoff, urban runoff	TSSWCB, S & W Conservation Districts, Agricultural Extension Service, Municipalities
Elevated levels of selenium and PCBs	Urban runoff, industrial discharges	TNRCC, Wastewater Permittee, Municipalities

The TNRCC's Framework for Implementing Water Quality Management



Phase I - Scoping and Re-evaluation

Establish Priority Watersheds, Re-evaluate Goals, Develop Monitoring Plans, and Promote Public Involvement

- Finalize CWA §303(d) list—Priority Watersheds—water bodies that do not support their designated uses



- Statutory authority to implement TMDLs for point sources and nonpoint sources rests with several different agencies
- The Watershed Management Approach provides consistent process to coordinate water quality management and ensure efficient use of limited resources

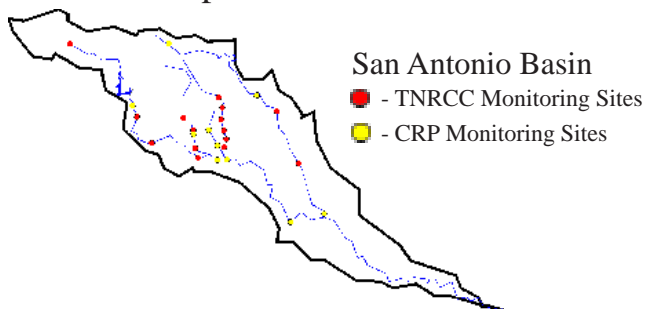


- Public participation forums are used to arrive at consensus among stakeholders

Phase II - Data Collection

*Monitor Water Quality & Verify Sources of Pollution
in Priority Watersheds*

- Implement Water Quality Monitoring Plans
 - Statewide baseline monitoring network
 - Special studies in priority watersheds to support determination of Load Allocations
 - Basin-specific data
- Verify Causes, Sources, Severity, and Extent of Pollution
 - Point Source
 - Nonpoint Source
- Compile and Maintain Database



Phase III - Assessment & Targeting

*Update Water Quality Assessment and Quantify Pollutant Loads
in Priority Watersheds*

- Re-evaluate suitability of standards for priority watersheds
- Recommended pollutant loadings based on technical analysis and monitoring data
- Weigh competing concerns
- Develop a phased approach for implementation of control measures



Phase IV - Strategy Development

Develop and Allocate Pollution Control Responsibilities for Priority Watersheds

- Develop consensus-based pollution control strategies
 - Multiple partners participate in public forums to reach consensus
 - Regulatory and Nonregulatory Management Strategies
- Establish schedules and actions
- Document agreements
 - Total Maximum Daily Loads (TMDLs) — Allocate allowable loads to the contributing point and nonpoint source discharges



Phase V - Implementation

Multiple Partners Implement Source Controls: Permits, Rules, Best Management Practices, Education

- Implement Partnership Agreements for Achieving Pollutant Reductions
 - Regulatory Strategies
 - Wastewater permits (TNRCC and EPA)
 - Surface water quality standards (TNRCC, EPA)
 - Surface mining permits, oil and gas permits (RCT)
 - Development ordinances (Municipalities)
 - Nonregulatory Strategies
 - Education (TNRCC, TSSWCB, TPWD, TFS, COGS, Municipalities)
 - Vegetation management and highway construction best management practices (TxDOT)
 - Agricultural best management practices (TSSWCB)
 - Urban NPS best management practices (TNRCC)
- Prepare for reiteration of cycle to focus on new set of impaired water bodies
 - Evaluation of impairment and attainment of designated use
 - Revise §305(b) Report and §303(d) List

